

IN THE CLAIMS:

1. A method for performing a frequency-domain transform on a time-domain signal having a sequence length  $N$ , wherein the method is executed by a processor, the method comprising
  - decomposing the time-domain signal to a plurality of decomposed signals, wherein each of the plurality of decomposed signals includes a sequence length less than  $N$ ;
  - performing a transform on the plurality of decomposed signals to obtain a transformed signal;
  - composing the plurality of transformed signals to obtain a composed signal, including a substep of
    - scaling at least one of the transformed signals.
2. The method of claim 1, further comprising
  - determining a value for a scale factor based on  $N$ ; and
  - using the determined value for a scale factor in the substep of scaling at least one of the transformed signals.
3. The method of claim 2, wherein the steps of claim 1 are performed in real time and wherein the step of determining a value for a scale factor is performed in non-real time.
4. The method of claim 1, further comprising
  - determining a value for a scale factor; and
  - using the determined value for a scale factor in the substep of scaling at least one of the transformed signals.
5. The method of claim 4, wherein a value for a scale factor is a constant.
6. The method of claim 5, wherein a value for a scale factor is zero.
7. The method of claim 1, wherein the frequency-domain transform includes a discrete cosine transform.

8. The method of claim 7, wherein the substep of scaling at least one of the transformed signals includes a substep of

using a factor of  $\frac{1}{2 \cos(\frac{\pi k}{N})}$ .

9. An apparatus for performing a frequency-domain transform on a time-domain signal having a sequence length N, the apparatus comprising

a processor;

a decomposing process for decomposing the time-domain signal to a plurality of decomposed signals, wherein each of the plurality of decomposed signals includes a sequence length less than N;

a transform process for performing a transform on the plurality of decomposed signals to obtain a transformed signal;

a composing process for composing the plurality of transformed signals to obtain a composed signal; and

a scaling process for scaling at least one of the transformed signals.

10. A computer-readable medium including instructions executable by a processor for performing a frequency-domain transform on a time-domain signal having a sequence length N, the computer-readable medium including

one or more instructions for decomposing the time-domain signal to a plurality of decomposed signals, wherein each of the plurality of decomposed signals includes a sequence length less than N;

one or more instructions for performing a transform on the plurality of decomposed signals to obtain a transformed signal;

one or more instructions for composing the plurality of transformed signals to obtain a composed signal; and

one or more instructions for scaling at least one of the transformed signals.